

What is claimed is:

1. A method of re-routing a path that is installed in a transoceanic Multiplex Section Shared Protection Ring network in the event of a failure on a span of said path, said network comprising network elements connected in a ring configuration by fiber spans, said fiber spans comprising high priority channels and low priority channels, said method comprising the step of performing a ring switch action by Multiplex Section Shared Protection mechanism, wherein it further comprises the step of providing said ring with a Time Slot Interchange mechanism and wherein it further comprises the step of re-routing the failed path over time slot of low-priority channels corresponding to time slot of high-priority channels of failed span.

2. A method according to claim 1, in which a further span of the failed path becomes affected by an additional failure, wherein it further comprises the steps of: i) releasing the re-routing that was performed because of the first failed span; ii) selecting one of the failed spans; and iii) re-routing the failed path over time slot of the low priority channels corresponding to time slot of high priority channels of the failed span that has been selected.

3. A method according to claim 1, in which a further span becomes affected by a failure, wherein it further comprises the step of maintaining the re-routing action, performed because of the first failed span, should persistency of re-routing information be supported by the network elements of the ring network.

4. A method according to claim 2, wherein the step of selecting one of the failed spans comprises the steps of: identifying nodes terminating the failed path to be protected; identifying switching nodes; and considering the two spans adjacent to the switching nodes that are able to communicate with the termination nodes of path to be protected in the case where at least one further span of the installed path becomes affected by an additional failure.

5. A method according to claim 2, wherein the step of selecting one of the failed spans comprises the steps of: providing each network node with a node identification ID; identifying switching nodes; and selecting that failed span adjacent to the switching node having higher or lower node identification ID.

6. A method according to claim 2, wherein the step of selecting one of the failed spans comprises the steps of: providing a network ring map; identifying switching nodes; and selecting that failed span adjacent to the switching node that comes first or last in the network ring map.

7. A method according to claim 2, wherein the step of selecting one of the failed spans comprises the steps of: identifying west and east sides in the ring network; identifying switching nodes; and selecting that failed span that is adjacent to the far west or far east switching node in the ring network.

8. A network element of a transoceanic Multiplex Section Shared Protection Ring network, said ring network comprising further network elements connected one to each other in a ring configuration by fiber spans, said fiber spans comprising high priority channels and low priority channels, said network element comprising means for performing ring switch actions, namely pass-through, bridge or switch actions, upon receipt of corresponding signalings and means for issuing and sending proper signalings upon receipt of corresponding signalings, a path being installed in said ring network, wherein a time slot interchange mechanism is provided in said ring network and wherein said network element further comprises means for, in case of failure in a span of the installed path, re-routing the path over time slot of low priority channels corresponding to time slot of high priority channels of the failed span.

9. A network element according to claim 8, in which a further span of the path becomes affected by a failure, wherein it further comprises: i) means for releasing the re-routing action performed because of the first failed span; ii) means

for selecting one of failed spans; and iii) means for re-routing path over time slot of low priority channels corresponding to the time slot of the high priority channels of the failed span which has been selected.

10. A network element according to claim 8, in which a further span of the path becomes affected by a failure, wherein it further comprises means for maintaining the re-routing action, performed because of the first failed span, should the persistency of the re-routing information be supported by the network elements of the ring network.

11. A network element according to claim 9, wherein the failed path to be protected comprises termination nodes, switching nodes being identified because of failure, and wherein said means for selecting one of the failed spans comprise means for considering the two spans adjacent to the switching nodes able to communicate with the termination nodes of path to be protected in the case where at least one further span of the path becomes affected by a failure.

12. A network element according to claim 9, said network element being a path termination node, wherein it further comprises means for performing a Bridge&Switch action upon receipt of two signalings comprising corresponding bridge requests with Bridge&Switch status code related to different spans.

13. A network element according to claim 9, said network element being a path non-termination node, wherein it further comprises means for performing a pass-through action upon receipt of at least one signaling comprising a bridge request with a Bridge&Switch status code.

14. A network element according to claim 8, said network element being a path termination node, wherein it comprises means for performing a Bridge&Switch action upon receipt of two signalings comprising corresponding bridge requests with Idle status code related to the same span.

15. Network element according to claim 9, said network element being a path non-termination node, wherein it further comprises means for performing a pass-through action upon receipt of at least one signaling comprising a bridge request with Idle status code.

16. A transoceanic Multiplex Section Shared Protection Ring network comprising one or more network elements connected one to each other in a ring configuration by fiber spans, said fiber spans comprising high priority channels and low priority channels, said network elements comprising means for performing ring switch actions, namely pass-through, bridge or switch actions, upon receipt of corresponding signalings and means for issuing and sending proper signalings upon receipt of corresponding signalings, a path being installed in said ring network, wherein a time slot interchange mechanism is provided in said ring network and wherein said network elements further comprise means for, in case of failure in a span of the installed path, re-routing the path over time slot of low priority channels corresponding to time slot of high priority channels of the failed span.